COSEL

参考資料

TEST DATA OF MGFW302412

Regulated DC Power Supply
November 19, 2010

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COSEL CO.,LTD.

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Item	Input Current (by Input Voltage)
Object	————————

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Testing Circuitry Figure A

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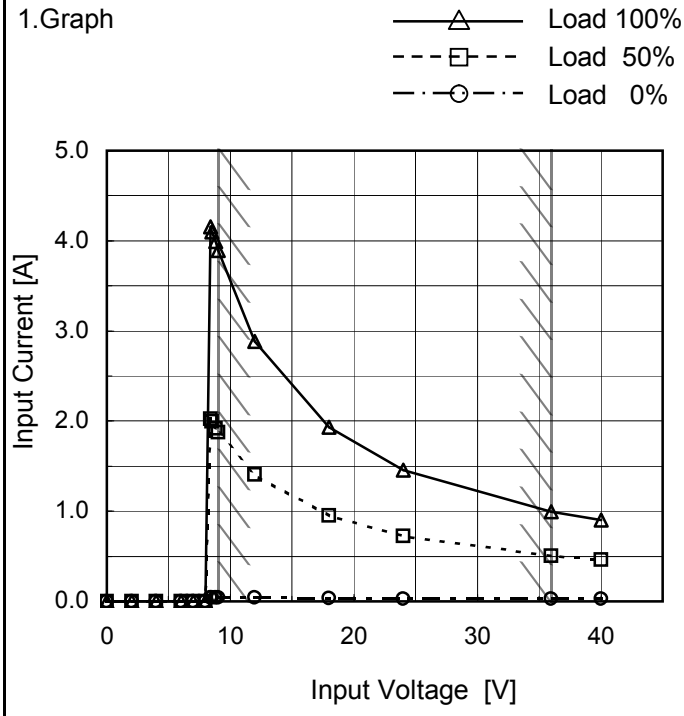

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
6.0	0.002	0.002	0.002
7.0	0.002	0.002	0.002
8.0	0.002	0.002	0.002
8.4	0.044	2.027	4.157
8.5	0.044	1.998	4.100
8.8	0.044	1.920	3.992
9.0	0.044	1.873	3.894
12.0	0.041	1.409	2.883
18.0	0.037	0.951	1.932
24.0	0.028	0.724	1.458
36.0	0.025	0.504	0.996
40.0	0.025	0.460	0.905
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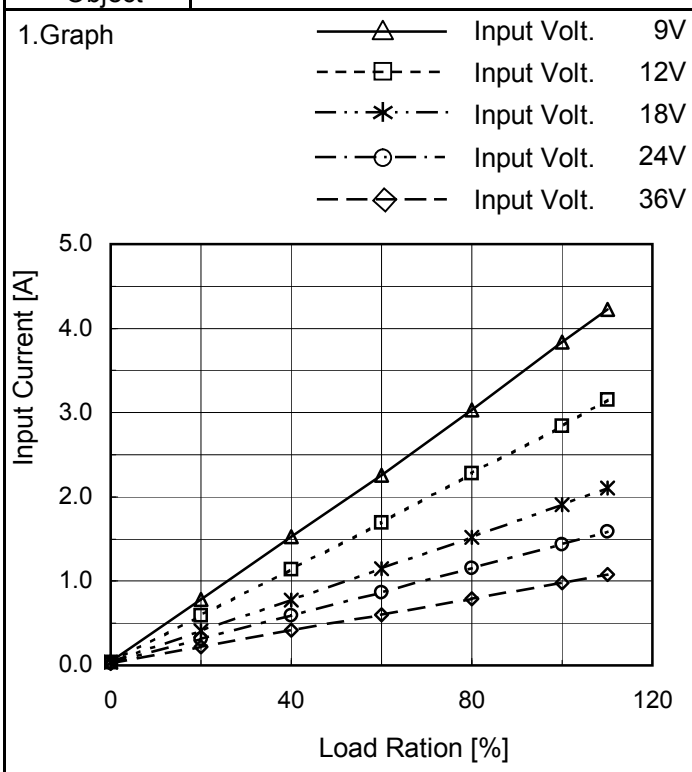
COSEL

Model	MGFW302412
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

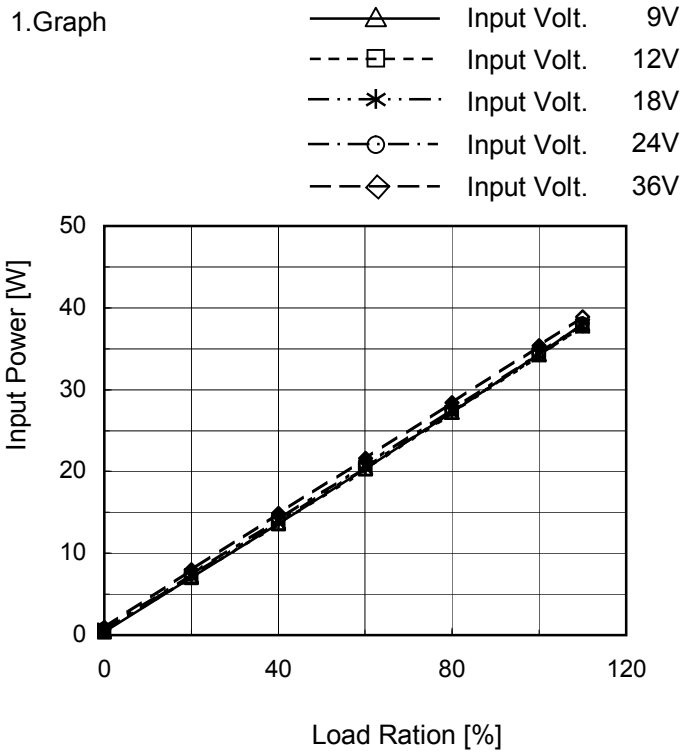
Load Ration [%]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.044	0.040	0.036	0.030	0.026
20	0.779	0.594	0.407	0.310	0.222
40	1.525	1.138	0.772	0.592	0.414
60	2.258	1.692	1.145	0.868	0.601
80	3.034	2.280	1.520	1.153	0.791
100	3.836	2.842	1.904	1.438	0.983
110	4.224	3.152	2.104	1.586	1.082
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW302412
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

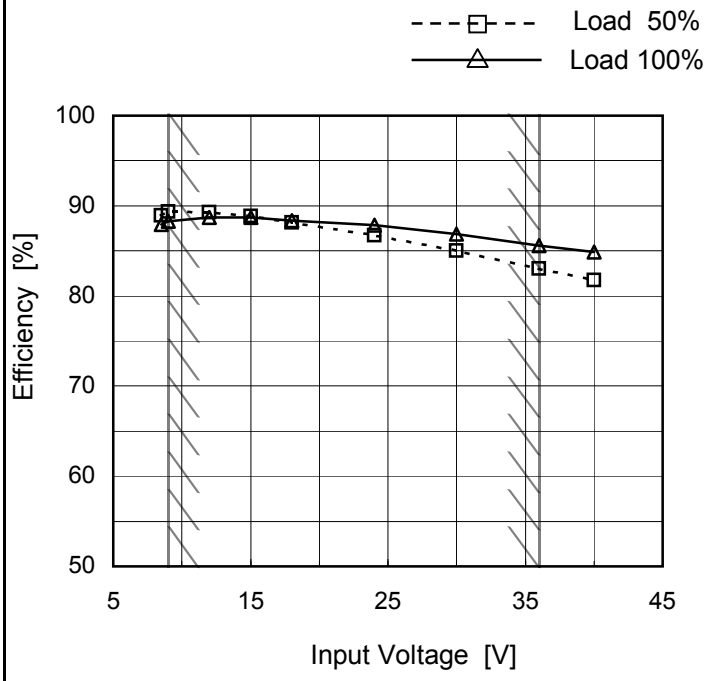
Load Ration [%]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.40	0.49	0.65	0.71	0.93
20	7.03	7.11	7.28	7.41	7.98
40	13.58	13.63	13.87	14.15	14.89
60	20.31	20.29	20.50	20.79	21.59
80	27.21	27.15	27.26	27.55	28.38
100	34.32	34.17	34.30	34.46	35.40
110	38.01	37.74	37.80	37.99	38.90
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW302412
Item	Efficiency (by Input Voltage)
Object	———————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8.5	88.9	87.9
9.0	89.4	88.3
12.0	89.3	88.7
15.0	88.8	88.7
18.0	88.2	88.3
24.0	86.8	87.9
30.0	85.0	86.9
36.0	83.0	85.6
40.0	81.7	84.9

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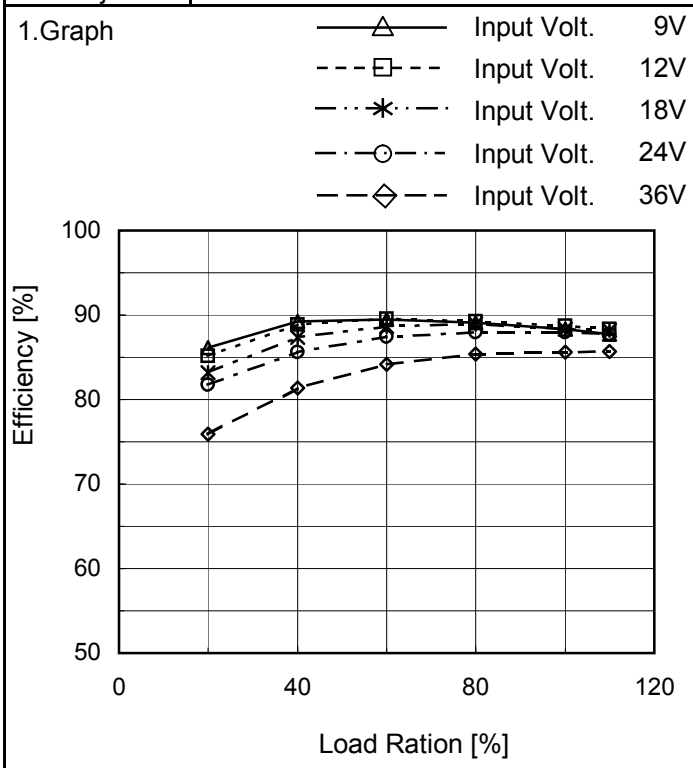
Model	MGFW302412
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-	-	-
20	86.2	85.2	83.2	81.7	75.9
40	89.2	88.9	87.3	85.6	81.4
60	89.5	89.6	88.7	87.4	84.2
80	89.1	89.3	88.9	88.0	85.4
100	88.3	88.7	88.4	87.9	85.6
110	87.7	88.3	88.2	87.7	85.7
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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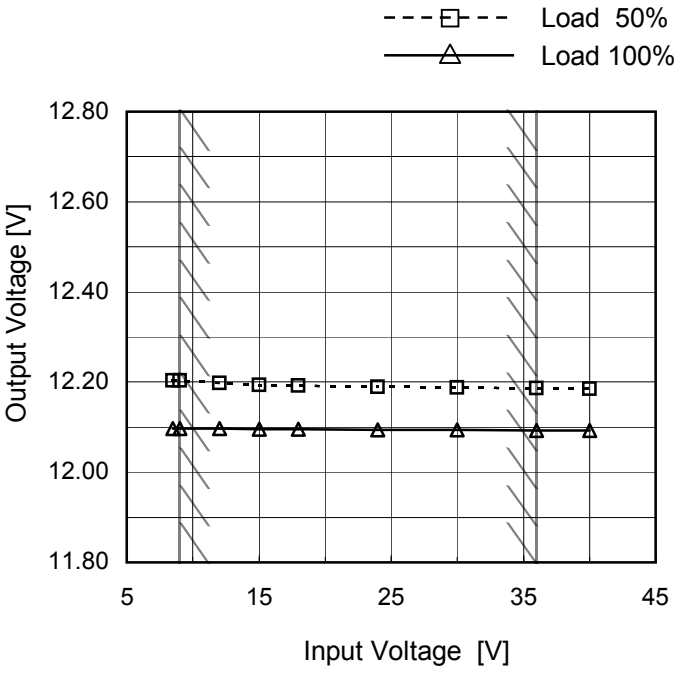
Model	MGFW302412
Item	Line Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



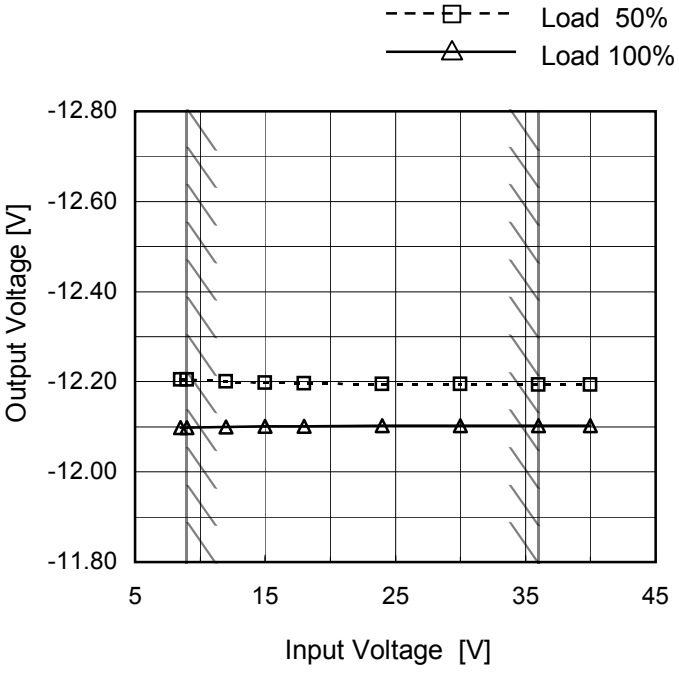
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	12.204	12.097
9.0	12.204	12.097
12.0	12.198	12.096
15.0	12.194	12.096
18.0	12.192	12.095
24.0	12.189	12.094
30.0	12.187	12.094
36.0	12.186	12.093
40.0	12.185	12.093

-12V: Rated output current

Object	-12V1.25A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	-12.205	-12.099
9.0	-12.205	-12.099
12.0	-12.200	-12.100
15.0	-12.198	-12.101
18.0	-12.197	-12.101
24.0	-12.195	-12.102
30.0	-12.194	-12.103
36.0	-12.194	-12.103
40.0	-12.194	-12.103

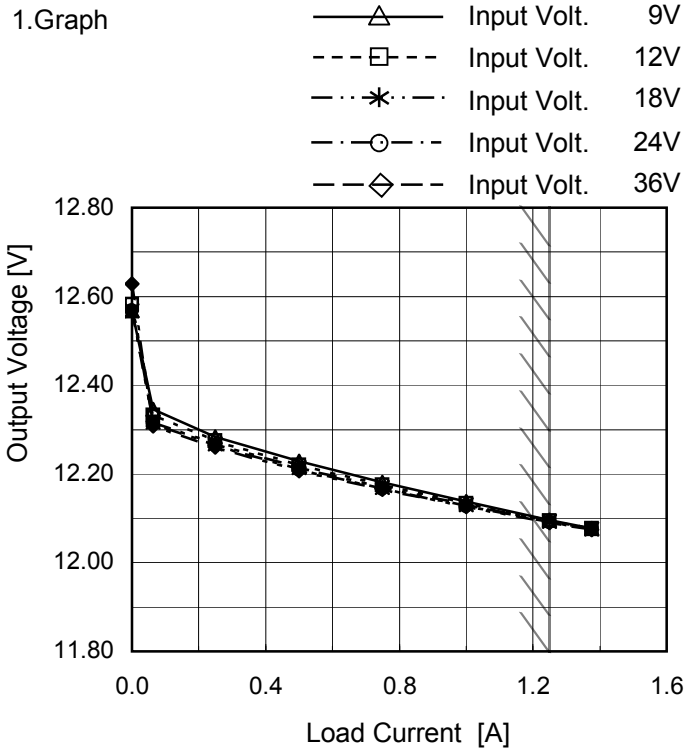
+12V: Rated output current

COSEL

Model	MGFW302412
Item	Load Regulation
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	12.568	12.583	12.567	12.568	12.628
0.063	12.346	12.332	12.317	12.314	12.308
0.250	12.284	12.274	12.267	12.264	12.261
0.500	12.229	12.221	12.214	12.210	12.207
0.750	12.181	12.175	12.170	12.167	12.164
1.000	12.137	12.134	12.130	12.128	12.126
1.250	12.096	12.095	12.093	12.092	12.091
1.375	12.077	12.077	12.076	12.075	12.074
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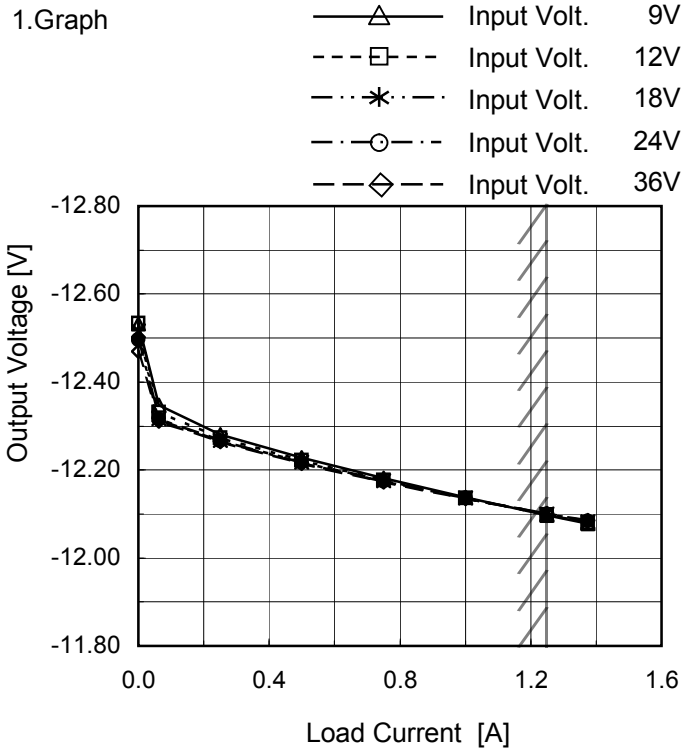
--	-	-	-	-	-

-12V: Rated output current

Object	-12V1.25A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	-12.533	-12.533	-12.516	-12.496	-12.469
0.063	-12.348	-12.332	-12.317	-12.315	-12.311
0.250	-12.281	-12.273	-12.268	-12.266	-12.265
0.500	-12.228	-12.222	-12.218	-12.216	-12.215
0.750	-12.181	-12.178	-12.175	-12.174	-12.173
1.000	-12.138	-12.137	-12.136	-12.136	-12.135
1.250	-12.097	-12.098	-12.100	-12.101	-12.101
1.375	-12.078	-12.080	-12.083	-12.084	-12.085
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

+12V: Rated output current

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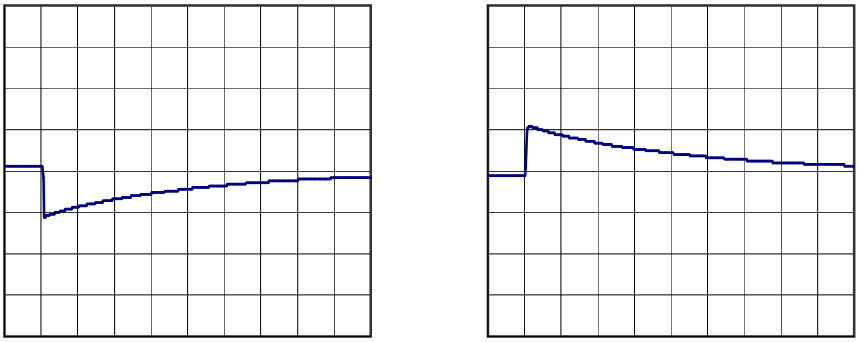
Model	MGFW302412
Item	Dynamic Load Response
Object	+12V1.25A

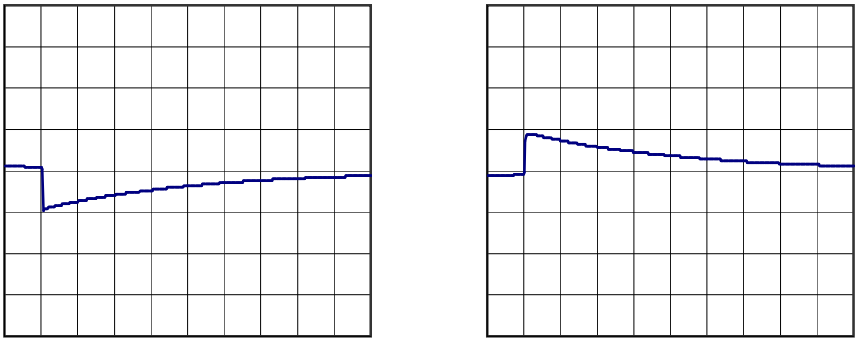
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Other output current rated
Cycle 1000 ms

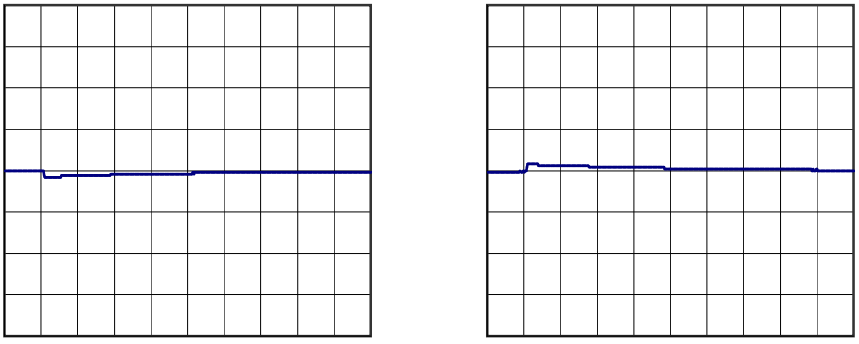
Min. Load (0A) ⟷
Load 100% (1.25A)



Min. Load (0A) ⟷
Load 50% (0.625A)



Load 50% (0.625A) ⟷
Load 100% (1.25A)

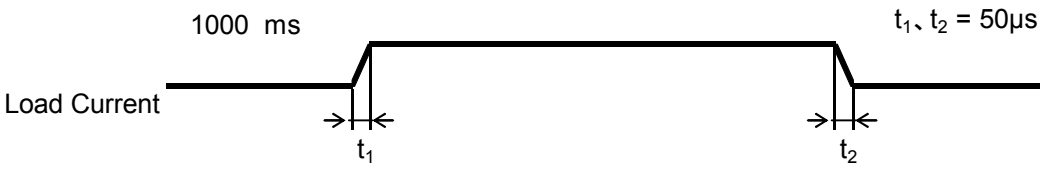


COSEL

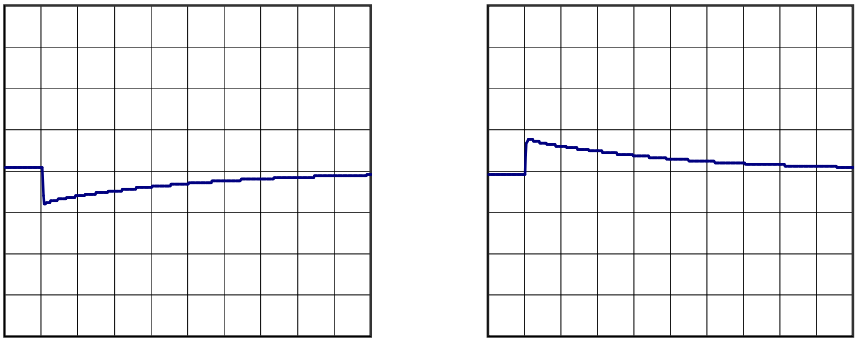
Model	MGFW302412
Item	Dynamic Load Response
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure A

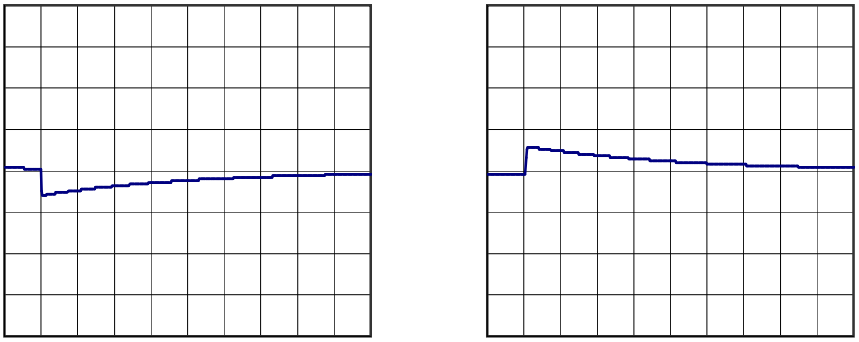
Input Volt. 24 V
Other output current rated
Cycle 1000 ms



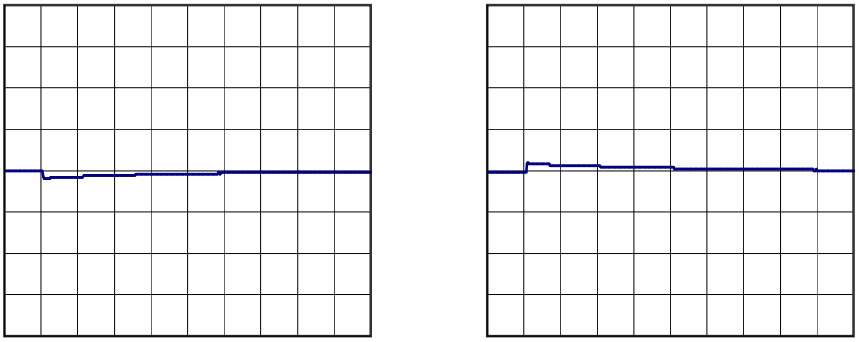
Min. Load (0A) ⟷
Load 100% (1.25A)



Min. Load (0A) ⟷
Load 50% (0.625A)



Load 50% (0.625A) ⟷
Load 100% (1.25A)

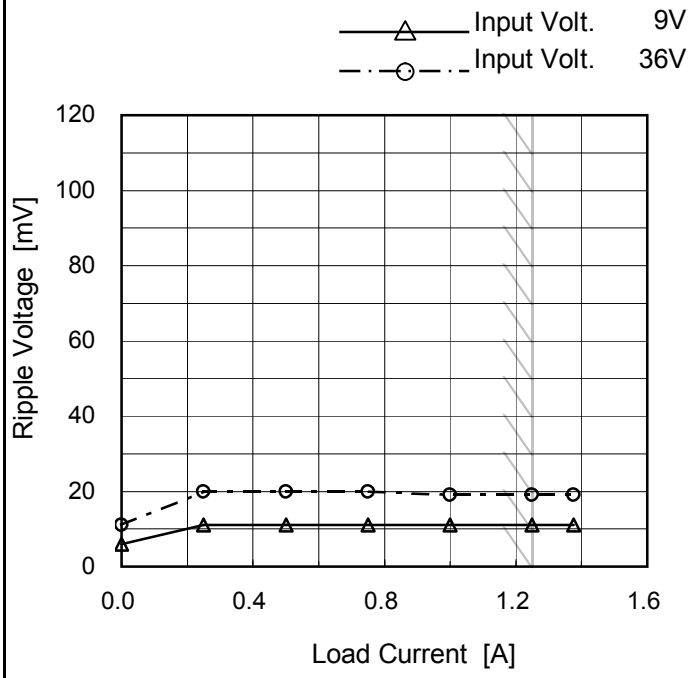


COSEL

Model	MGFW302412
Item	Ripple Voltage (by Load Current)
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

Ripple [mVp-p]

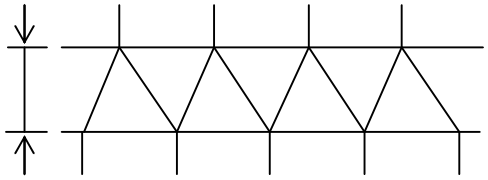


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	6	11
0.250	11	20
0.500	11	20
0.750	11	20
1.000	11	19
1.250	11	19
1.375	11	19
--	-	-
--	-	-
--	-	-
--	-	-

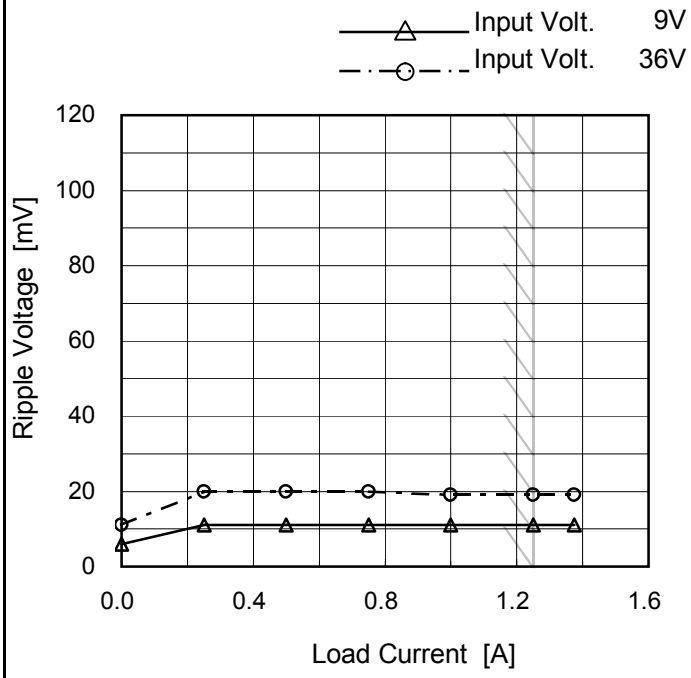
-12V: Rated output current

COSEL

Model	MGFW302412
Item	Ripple Voltage (by Load Current)
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

Ripple [mVp-p]

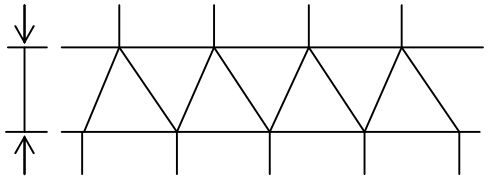


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	7	14
0.250	8	17
0.500	8	17
0.750	8	17
1.000	8	17
1.250	8	17
1.375	8	17
--	-	-
--	-	-
--	-	-
--	-	-

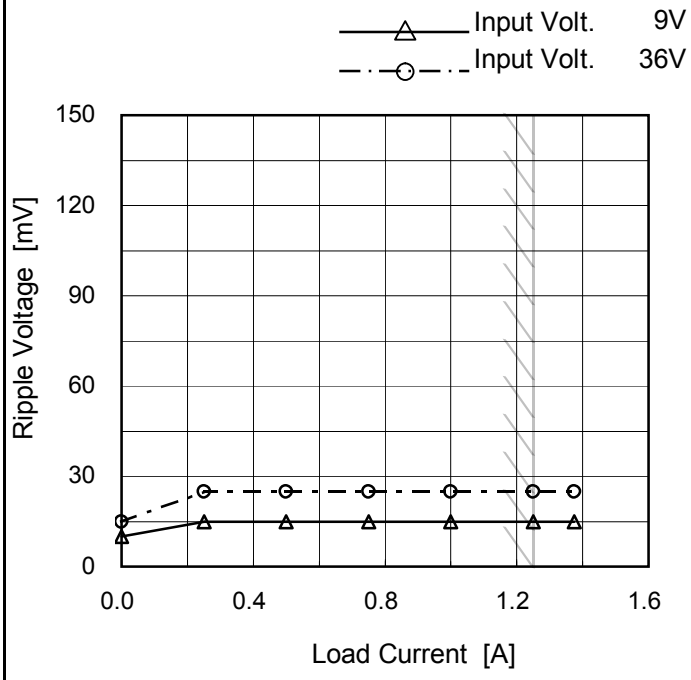
+12V: Rated output current

COSEL

Model	MGFW302412
Item	Ripple-Noise
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

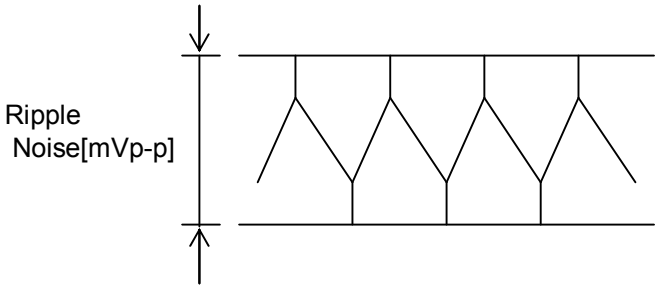


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	10	15
0.250	15	25
0.500	15	25
0.750	15	25
1.000	15	25
1.250	15	25
1.375	15	25
--	-	-
--	-	-
--	-	-
--	-	-

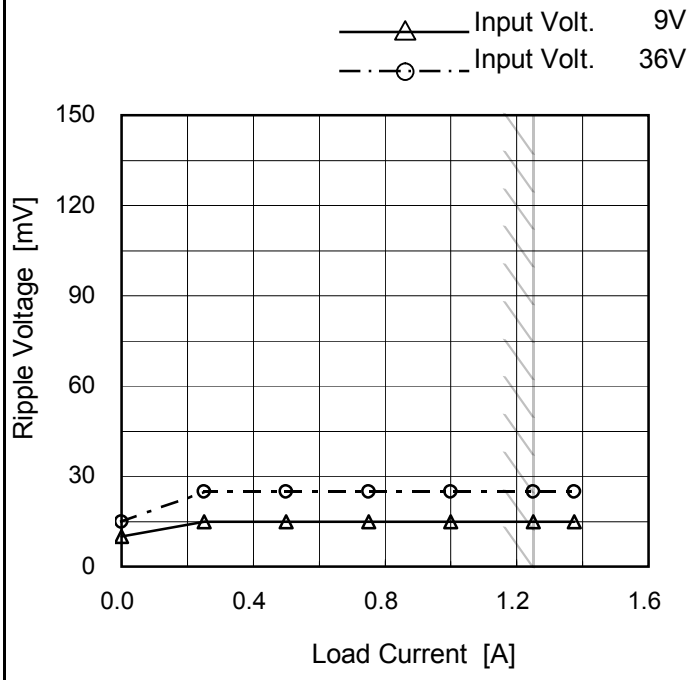
-12V: Rated output current

COSEL

Model	MGFW302412
Item	Ripple-Noise
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

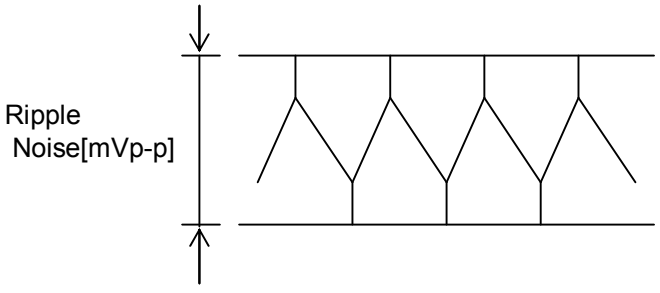


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.000	10	15
0.250	15	20
0.500	15	20
0.750	15	20
1.000	15	20
1.250	15	20
1.375	15	20
--	-	-
--	-	-
--	-	-
--	-	-

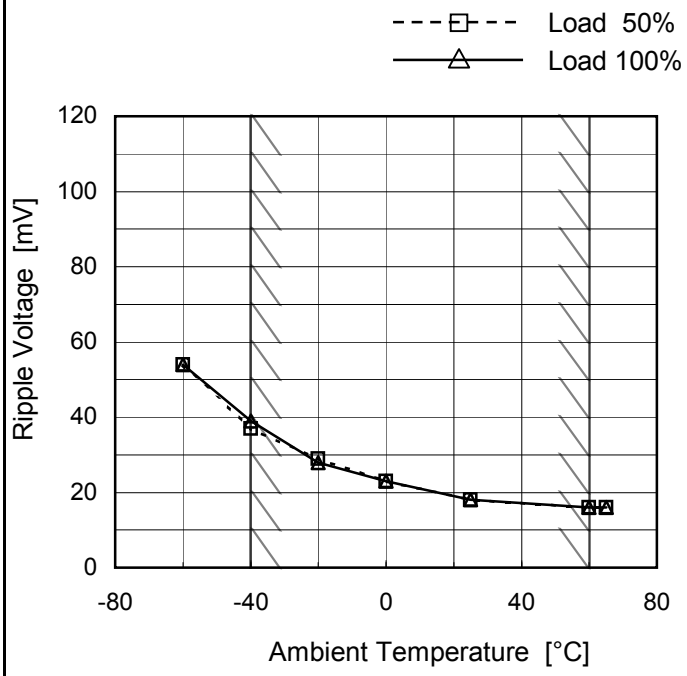
+12V: Rated output current

COSEL

Model	MGFW302412
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph



Input Volt. 24V

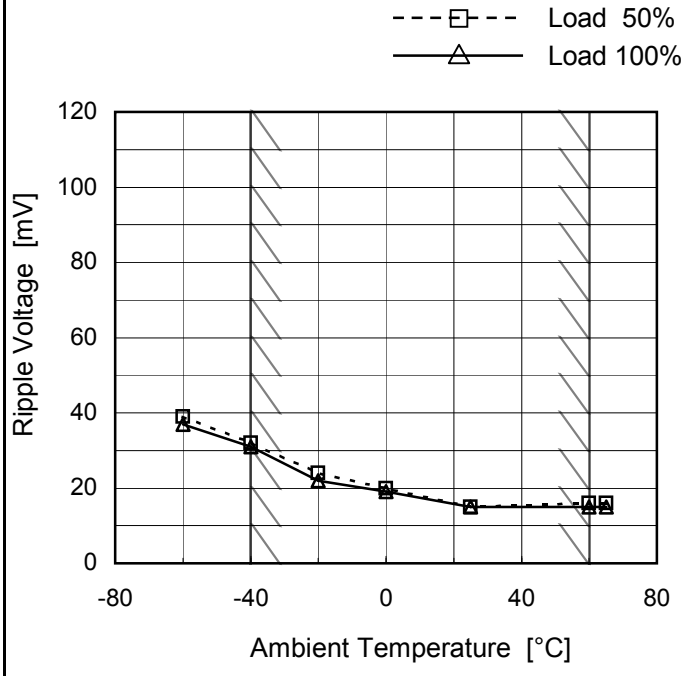
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	54	54
-40	37	39
-20	29	28
0	23	23
25	18	18
60	16	16
65	16	16
--	-	-
--	-	-
--	-	-
--	-	-

-12V: Rated output current

Object	-12V1.25A

1.Graph



Input Volt. 24V

Measured by 100 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	39	37
-40	32	31
-20	24	22
0	20	19
25	15	15
60	16	15
65	16	15
--	-	-
--	-	-
--	-	-
--	-	-

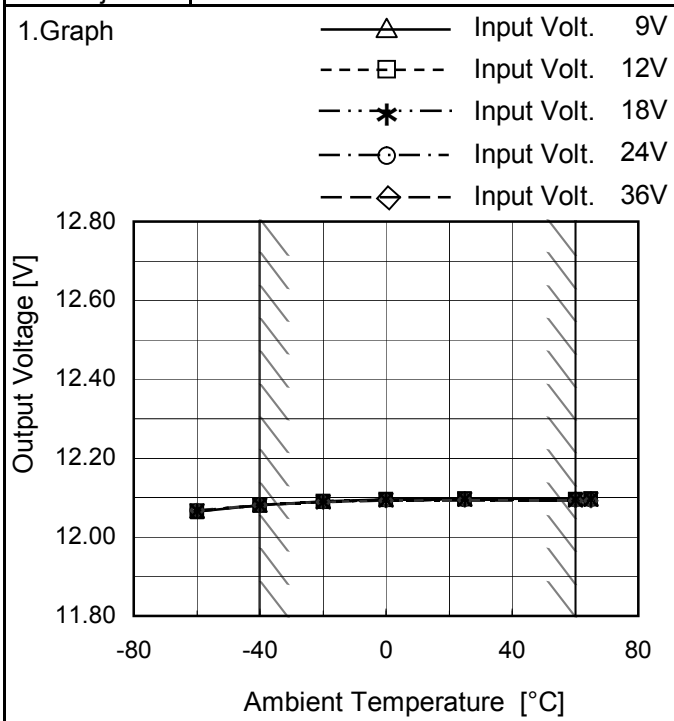
+12V: Rated output current

COSEL

Model	MGFW302412
Item	Ambient Temperature Drift
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph



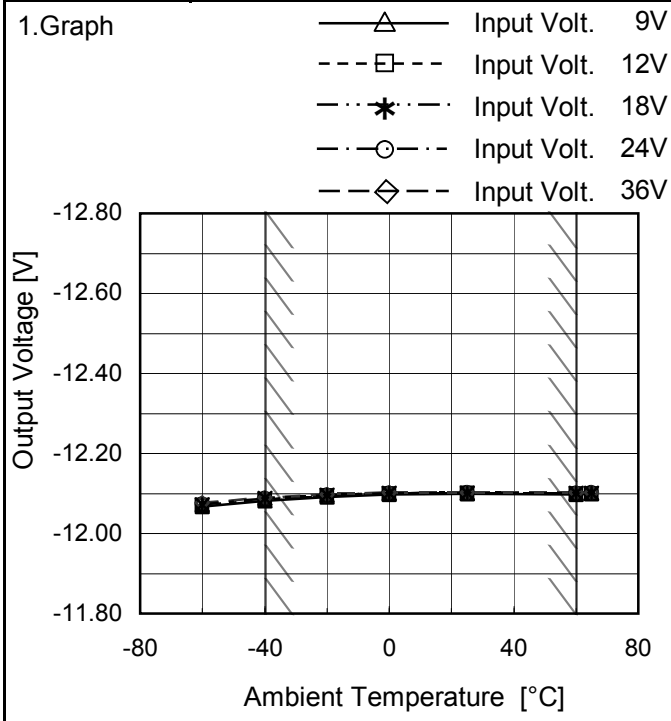
Load 100%

2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	12.065	12.067	12.066	12.067	12.068
-40	12.080	12.081	12.081	12.081	12.081
-20	12.090	12.090	12.090	12.089	12.089
0	12.096	12.095	12.094	12.094	12.093
25	12.098	12.097	12.095	12.095	12.094
60	12.097	12.096	12.094	12.094	12.092
65	12.098	12.097	12.095	12.094	12.092
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-12V1.25A

1.Graph



Load 100%

Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	-12.067	-12.070	-12.072	-12.074	-12.077
-40	-12.082	-12.084	-12.087	-12.089	-12.090
-20	-12.092	-12.094	-12.096	-12.097	-12.098
0	-12.097	-12.099	-12.100	-12.101	-12.102
25	-12.099	-12.100	-12.102	-12.102	-12.103
60	-12.098	-12.099	-12.101	-12.102	-12.102
65	-12.099	-12.100	-12.101	-12.102	-12.102
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	MGFW302412	
Item	Output Voltage Accuracy	Testing Circuitry Figure A

1.Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -40 - 60°C
Input Voltage : 9 - 36V
Load Current (AVR 1) : 0 - 1.25A (AVR 2) : 0 - 1.25A

* Other Output : Rated Load

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

* Output Voltage Accuracy (Ration) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2.Values

Object	+12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	36	0	12.625	±273	±2.3
Minimum Voltage	-40	9	1.25	12.080		

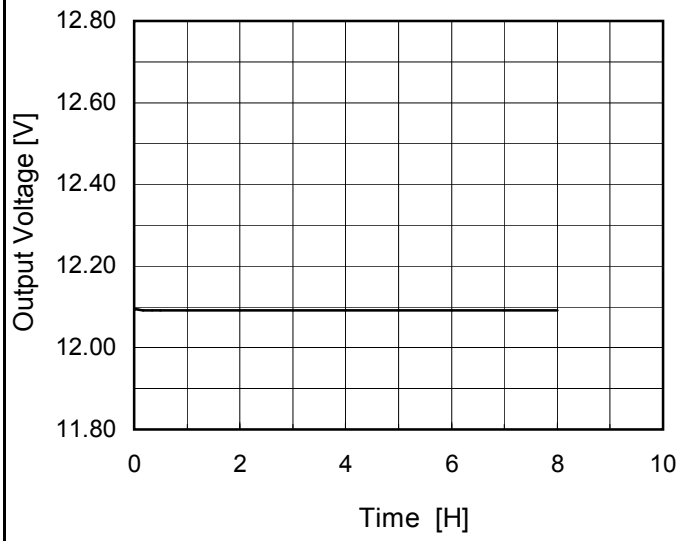
Object	-12V1.25A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	12	0	-12.531	±225	±1.9
Minimum Voltage	-40	9	1.25	-12.082		

COSEL

Model	MGFW302412
Item	Time Lapse Drift
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



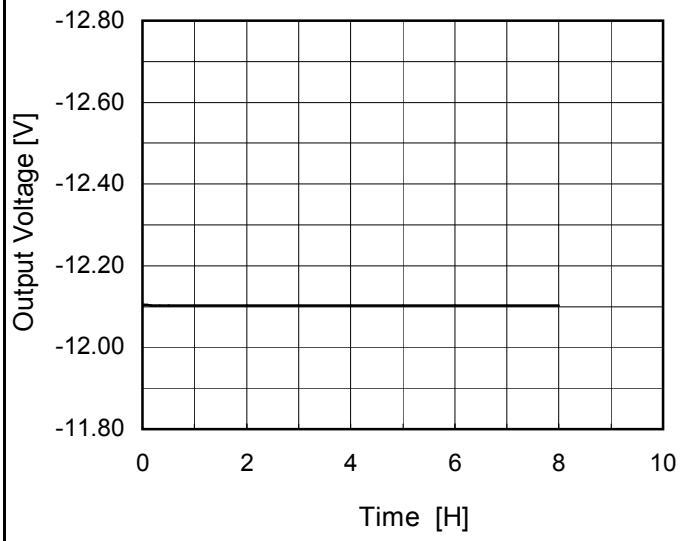
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.092
0.5	12.092
1.0	12.092
2.0	12.092
3.0	12.092
4.0	12.092
5.0	12.092
6.0	12.092
7.0	12.092
8.0	12.092

Object	-12V1.25A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-12.101
0.5	-12.103
1.0	-12.103
2.0	-12.103
3.0	-12.103
4.0	-12.103
5.0	-12.103
6.0	-12.103
7.0	-12.103
8.0	-12.103

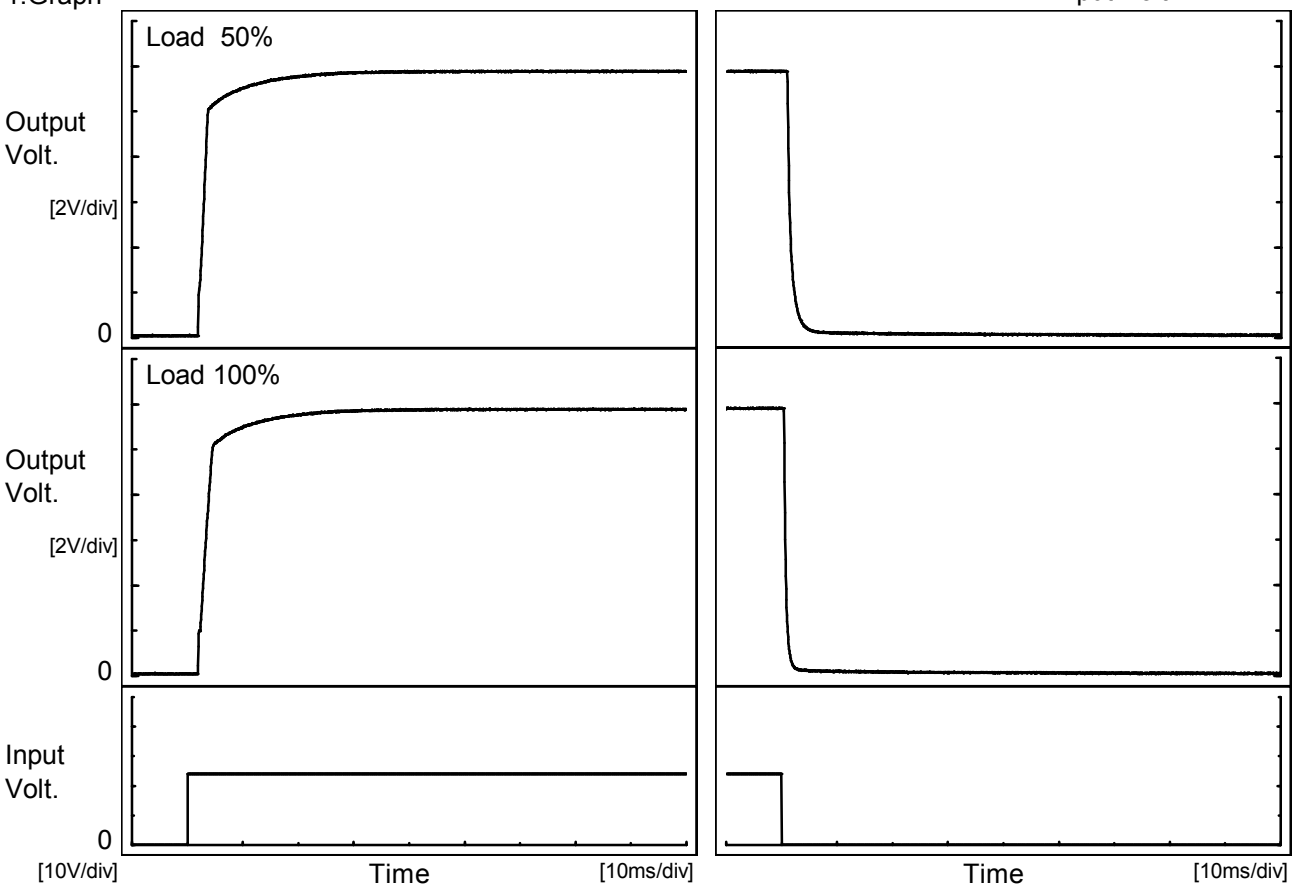
COSEL

Model	MGFW302412
Item	Rise and Fall Time
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

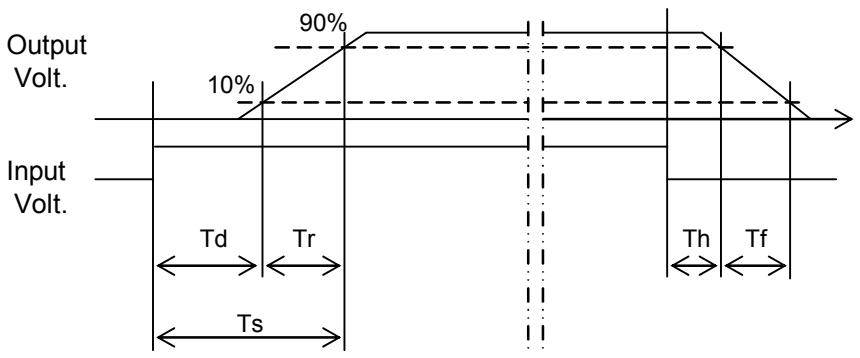
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.0	6.4	8.4	1.0	1.7
100 %	2.0	6.8	8.8	0.5	0.8

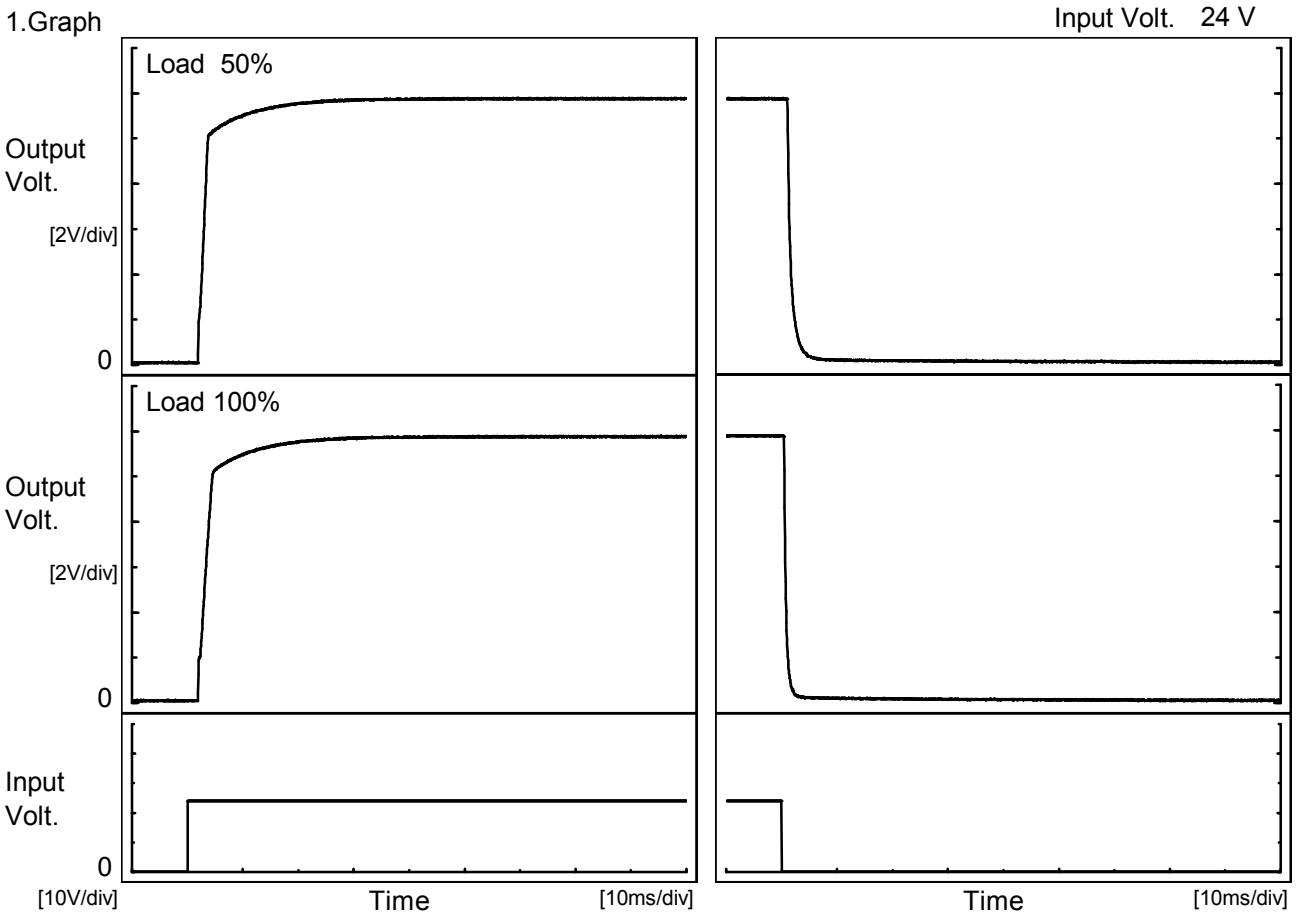


COSEL

Model	MGFW302412
Item	Rise and Fall Time
Object	-12V1.25A

Temperature 25°C
Testing Circuitry Figure A

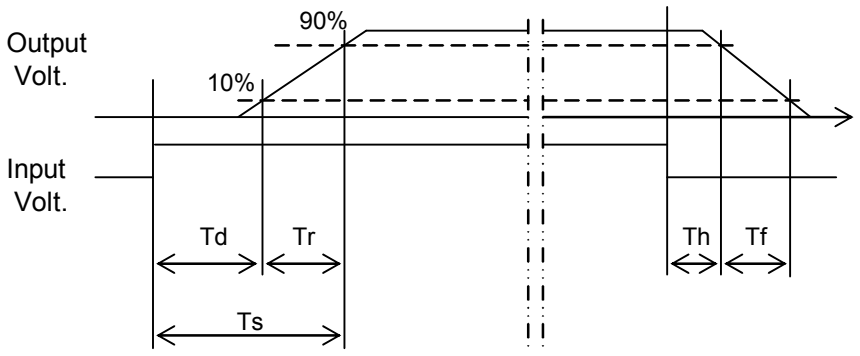
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.0	6.4	8.4	1.0	1.8
100 %	2.0	7.0	9.0	0.5	0.9



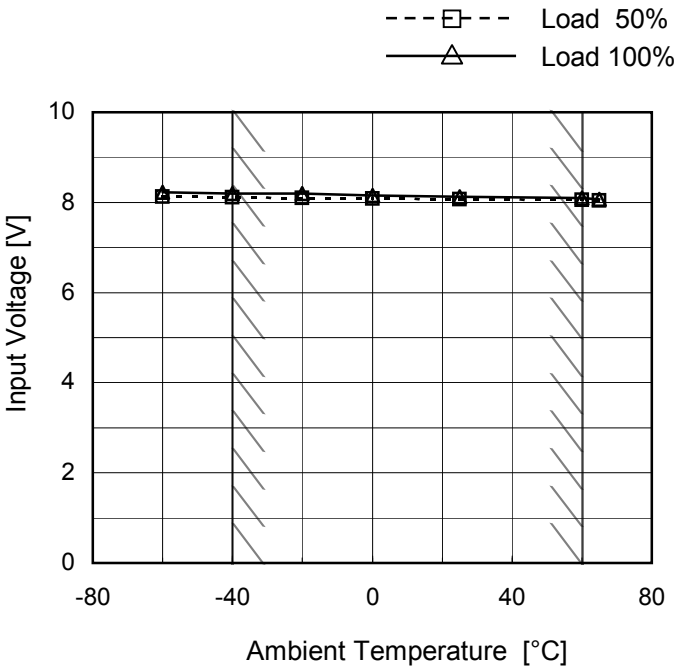
BC-10531

COSEL

Model	MGFW302412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V1.25A

Testing Circuitry Figure A

1.Graph

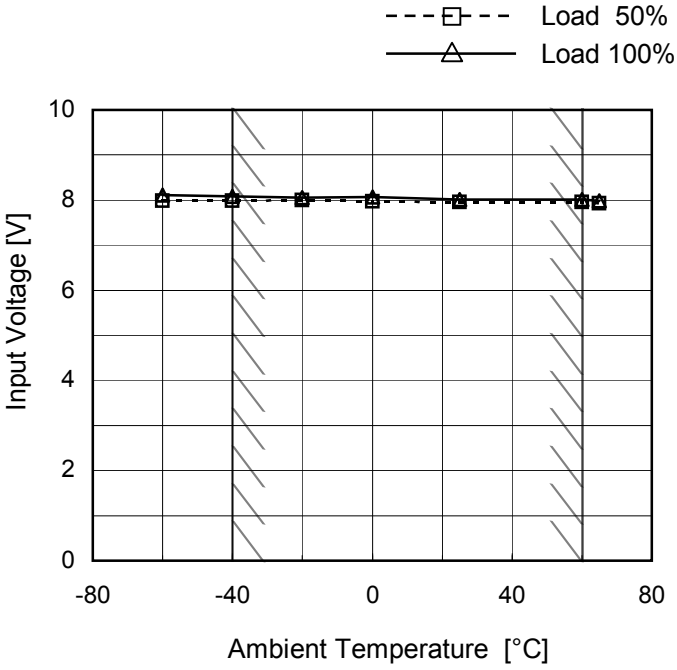


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.2	8.3
-40	8.2	8.2
-20	8.1	8.2
0	8.1	8.2
25	8.1	8.2
60	8.1	8.1
65	8.1	8.1
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V1.25A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.0	8.2
-40	8.0	8.1
-20	8.0	8.1
0	8.0	8.1
25	8.0	8.1
60	8.0	8.1
65	8.0	8.0
--	-	-
--	-	-
--	-	-
--	-	-

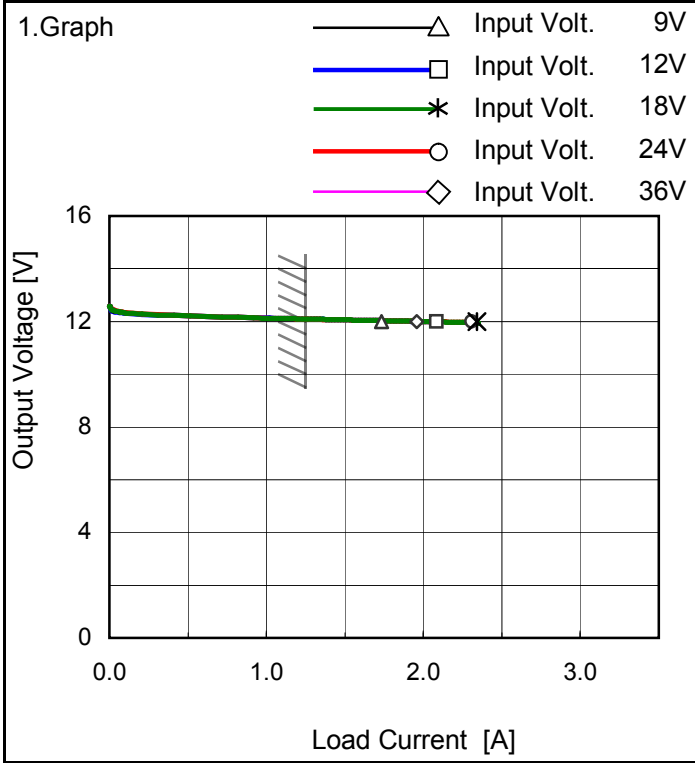
Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	MGFW302412
Item	Overcurrent Protection
Object	+12V1.25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

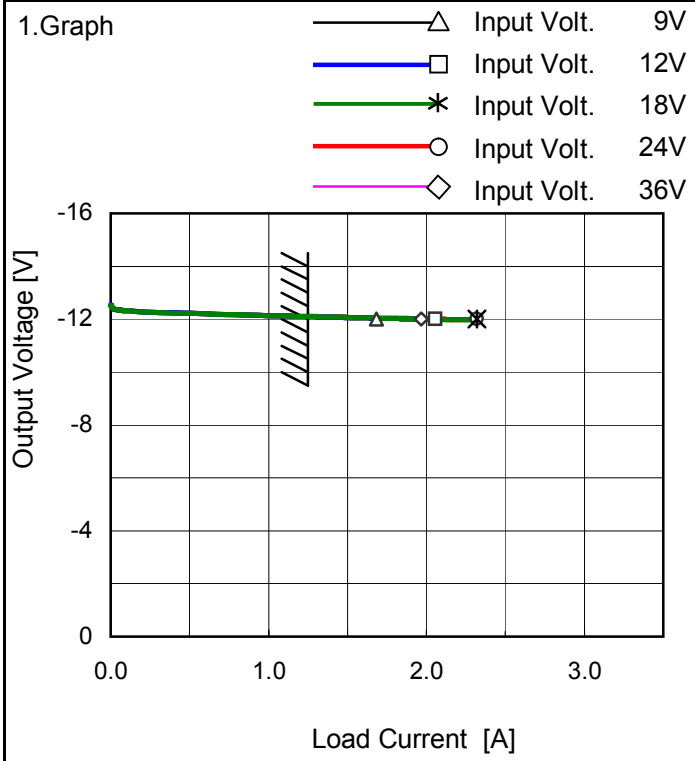


2.Values

Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
12.0	1.735	2.085	2.342	2.307	1.957
11.4	-	-	-	-	-
10.8	-	-	-	-	-
9.6	-	-	-	-	-
8.4	-	-	-	-	-
7.2	-	-	-	-	-
6.0	-	-	-	-	-
4.8	-	-	-	-	-
3.6	-	-	-	-	-
2.4	-	-	-	-	-
1.2	-	-	-	-	-
0.0	-	-	-	-	-

Object	-12V1.25A

1.Graph



Note: Slanted line shows the range of the rated load current.
Intermittent operation occurs when overcurrent protection is activated.

2.Values

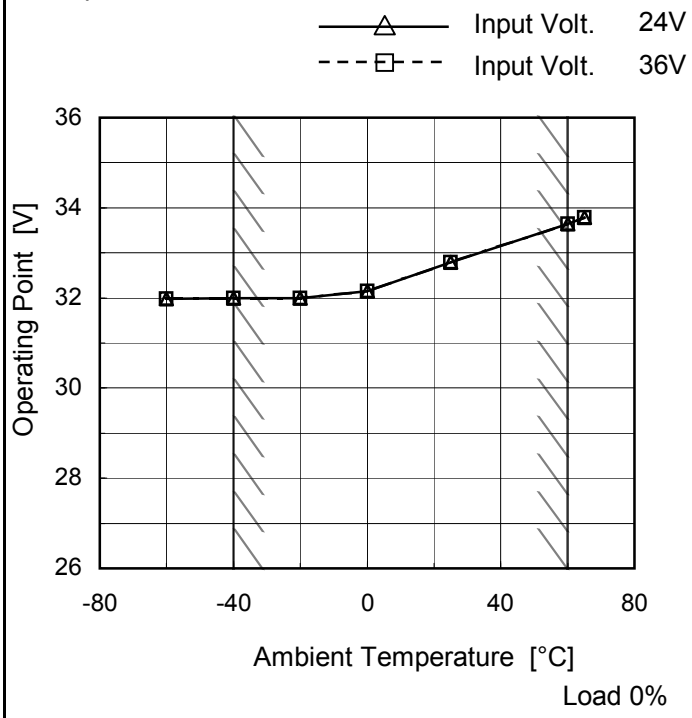
Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-12.0	1.685	2.058	2.319	2.318	1.966
-11.4	-	-	-	-	-
-10.8	-	-	-	-	-
-9.6	-	-	-	-	-
-8.4	-	-	-	-	-
-7.2	-	-	-	-	-
-6.0	-	-	-	-	-
-4.8	-	-	-	-	-
-3.6	-	-	-	-	-
-2.4	-	-	-	-	-
-1.2	-	-	-	-	-
0.0	-	-	-	-	-

COSEL

Model	MGFW302412
Item	Overvoltage Protection
Object	+24V1.25A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

Measured as a single output(+24V).

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 24[V]	Input Volt. 36[V]
-60	31.98	31.98
-40	31.99	31.99
-20	31.99	31.99
0	32.14	32.14
25	32.79	32.79
60	33.64	33.64
65	33.78	33.78
--	-	-
--	-	-
--	-	-
--	-	-

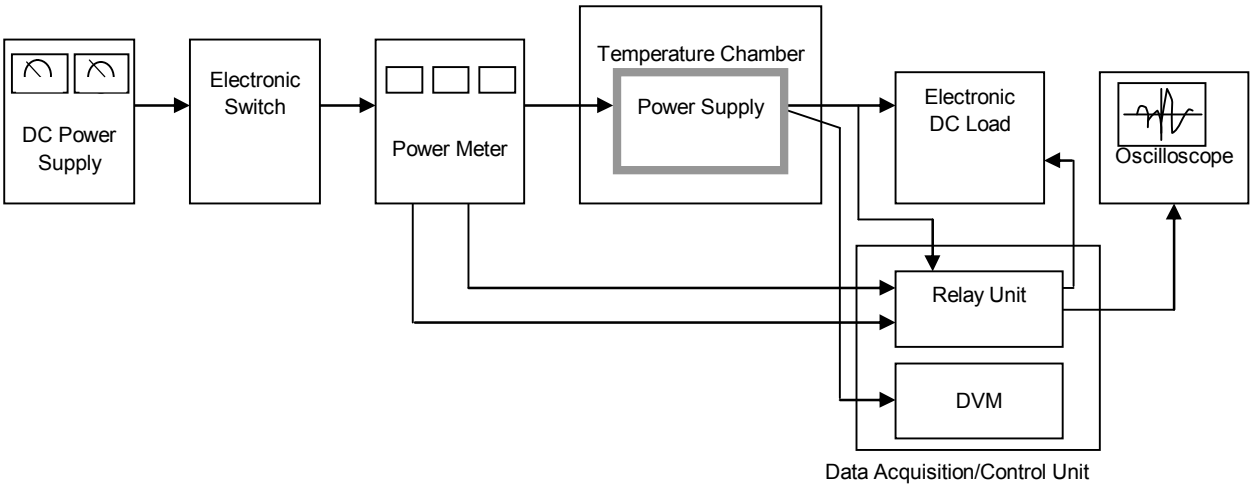


Figure A

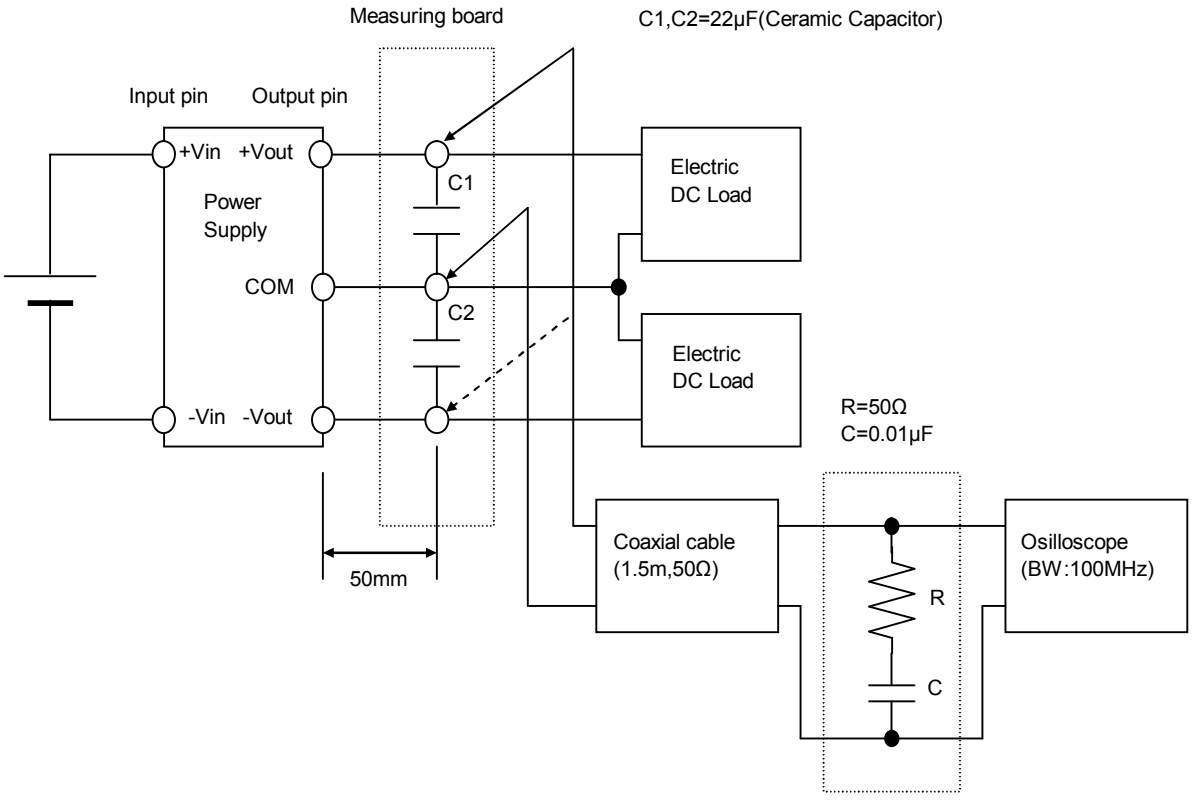


Figure B（Ripple and Ripple noise Characteristic）